

ABSTRACT

A vapor-phase tubular reactor in a shell heat exchanger for removal of the heat of reaction at essentially isothermal conditions has porous wicking surface applied to the external surface of reactor tubes. The porous wicking surface on the reactor tubes draws liquid heat transfer fluid from a reservoir at the bottom of the wicked tube section and provides enhanced evaporative cooling. The invention is particularly useful for highly exothermic reactions or when reaction selectivity is negatively affected by high temperature excursions.